Hattiesburg Public School District
Grade 7 Mathematics Units
2015 – 2016

Unit 2: Linear Relations	Time Frame: 35 Days/Oct 9 – Nov 20, 2015
Content Standards	**Standards for Mathematical Practice**
Major Standards	(1) Make sense of problems and persevere in solving them.
7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction $^{1/2}$/1/4 miles per hour, equivalently 2 miles per hour*.	(2) Reason abstractly and quantitatively. (3) Construct viable arguments and critique the reasoning of others. (4) Model with mathematics. (5) Use appropriate tools strategically. (6) Attend to precision. (7) Look for and make use of structure.
7.RP.2 Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. c. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn*. d. Explain what a point (*x, y*) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r*) where r is the unit rate. **7.EE.1** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	(8) Look for and express regularity in repeated reasoning. **7.RP.1 – MP: 2, 6** **7.RP.2 – MP: 1-8** **7.EE.1 – MP: 2, 6, 7** **7.EE.2 – MP: 2, 6, 7, 8** **7.G.1 – MP: 1-8**

7.EE.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by ⬚ 5%" is the same as "multiply by 1.05."*

Supporting Standards

Additional Standards

7.G.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. (**Partial Introduction- referencing *scale drawings* as similar figures limited to *triangles and rectangles only*)

Pre-requisite Standards

7.RP.1
- Convert units within a given measurement system to solve problems
- Compute using basic fractions and mixed numbers. Express answers in the simplest form.
- Understand the concept of ratios and unit rates.
- Write and describe a relationship between two quantities.

7.RP.2
- Interpret and explain line graphs.
- Understand the concept of unit rate and ratios.
- Understand the concept of proportions.

7.EE.1; 7.EE.2
- Write, read and evaluate numerical and algebraic expressions.
- Identify parts of an algebraic or numerical expression using mathematical

terms.
- Identify equivalent expressions using properties of operations.

7.G.1
- Use ratio and rate reasoning to solve real-world and mathematical problems.
- Calculate proportions.
- Identify geometric figures.
- Find the area of geometric figures.

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Lesson Topic Proportional Relationships	**Lesson Topic** Identifying Proportional and Non-proportional Relationships in Tables and Graphs	**Lesson Topic** Unit Rate and the Constant of Proportionality	**Lesson Topic** Representing Proportional Relationships with Equations	**Lesson Topic** Interpreting Graphs of Proportional Relationships
Standard Ref 7.RP.2a	**Standard Ref** 7.RP.2b; 7.RP.2c; 7.RP.2d; 7.EE.4a	**Standard Ref** 7.RP.1; 7.RP.3; 7.EE.4a	**Standard Ref** 7.RP.2b; 7.G.1	**Standard Ref** 7.RP.2b, 7.EE.4; 7.RP.2d
Resource/Strategy engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	**Resource/Strategy** engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	**Resource/Strategy** engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	**Resource/Strategy** engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	**Resource/Strategy** engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit
FAL	**Lesson 6**	**Lesson 7**	**Lesson 8**	**FAL**
Lesson Topic Classifying Proportion and Non-Proportion Situations	**Lesson Topic** Ratios and Rates Involving Fractions	**Lesson Topic** Finding Equivalent Ratios Given the Total Quantity	**Lesson Topic** Multistep Ratio Problems • Discount	**Lesson Topic** Maximizing Profit: Selling Soup

Standard Ref	• Ratios of Fractions and Their Unit Rates		(Markdowns)	**Standard Ref**
7.RP; 7.RP.2b, 7.EE.4; 7.RP.2d			• Sales Tax (Markups)	6.RP; 7.RP.1, 7.RP.3, 7.EE.4a
			• Commission	
Resource/Strategy	**Standard Ref**	**Standard Ref**	• Fees	**Resource/Strategy**
Mathshell.org	7.RP.1, 7.RP.3, 7.EE.4a	7.RP.1, 7.RP.3, 7.EE.4a	**Standard Ref**	Mathshell.org
			7.RP.1, 7.RP.3, 7.EE.4a	
	Resource/Strategy	**Resource/Strategy**		
	engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	**Resource/Strategy** engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	

Lesson 8	**Lesson 9**	**Lesson 10**	**Lesson 11**	**Lesson 12**
Lesson Topic	**Lesson Topic**	**Lesson Topic**	**Lesson Topic**	**Performance Task**
Multistep Ratio Problems	Equations /Graphs of Proportional Relationships Involving Fractions	Ratios of Scale Drawings	Computing Actual Lengths/Areas from a Scale Drawing	An Exercise in Creating a Scale Drawing
• Discount (Markdowns)		• Relating Scale Drawings to Ratios and Rates		
• Sales Tax (Markups)		• The Unit Rate as the Scale Factor	**Standard Ref**	**Standard Ref**
• Commission			7.RP.2b, 7.G.1	7.RP.2b, 7.G.1
• Fees	**Standard Ref**			
	7.RP.1, 7.RP.3, 7.EE.4a	**Standard Ref**	**Resource/Strategy**	**Resource/Strategy**
Standard Ref		7.RP.2b, 7.G.1	engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit
7.RP.1, 7.RP.3, 7.EE.4a	**Resource/Strategy**	**Resource/Strategy**		
Resource/Strategy	engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5bkKXHsE/edit	engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5		
engageNY/Module 1 https://docs.google.com/document/d/1KYgtd2q5x2clpDTwtJwpDeAoZw_M_O0R9Au5				

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